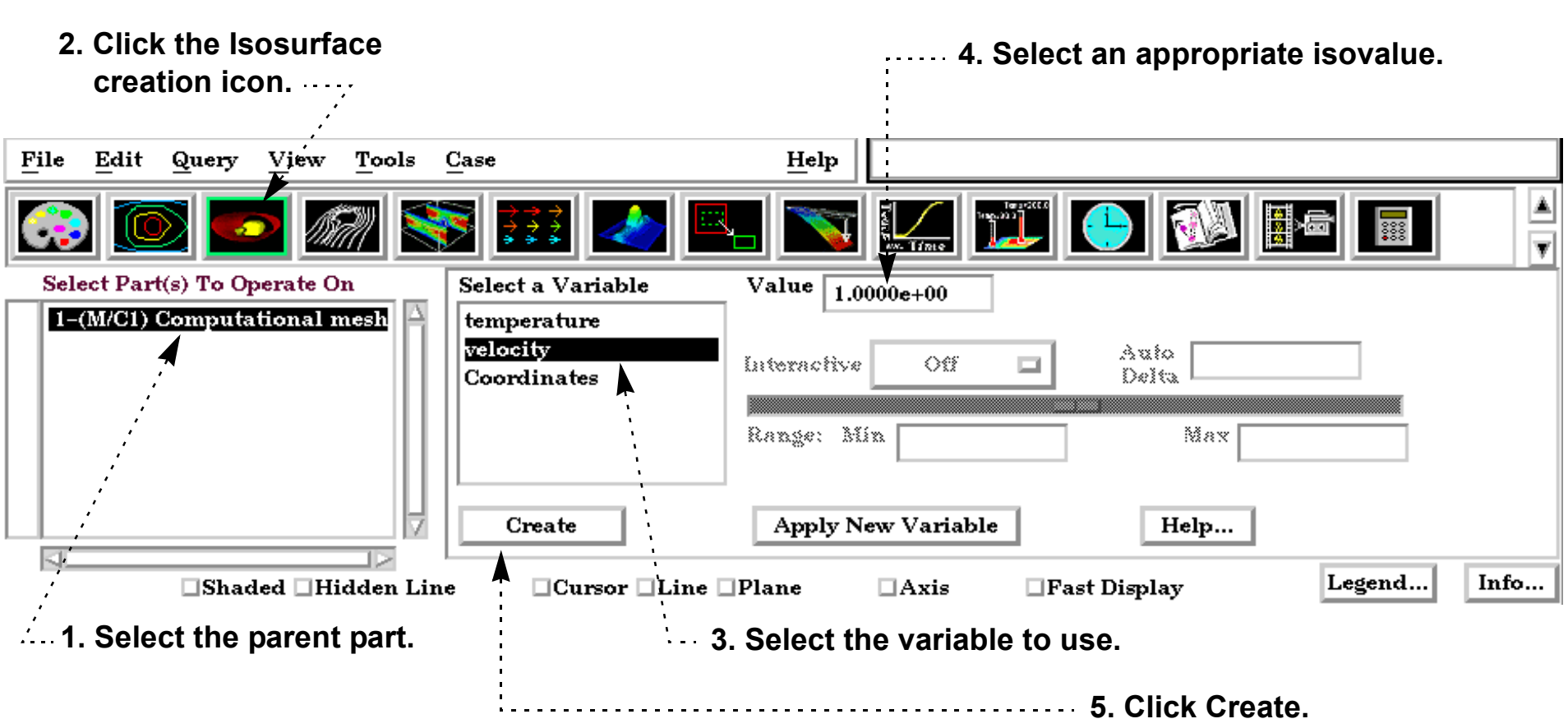
Introduction

An isosurface is a surface of constant value in a three-dimensional field. It is the 3D counterpart to the contour loop: the region on one side of the isosurface has values greater than the isovalue; the region on the other side has values less than the isovalue. In EnSight, an isosurface can be generated from a scalar variable, a component or magnitude of a vector variable, or a component of the model coordinates.

An isosurface of a scalar or vector variable is typically a complex surface reflecting the distribution of the underlying variable. Isosurfaces of coordinates, however, are typically regular geometric shapes such as planes, cylinders, cones or spheres.

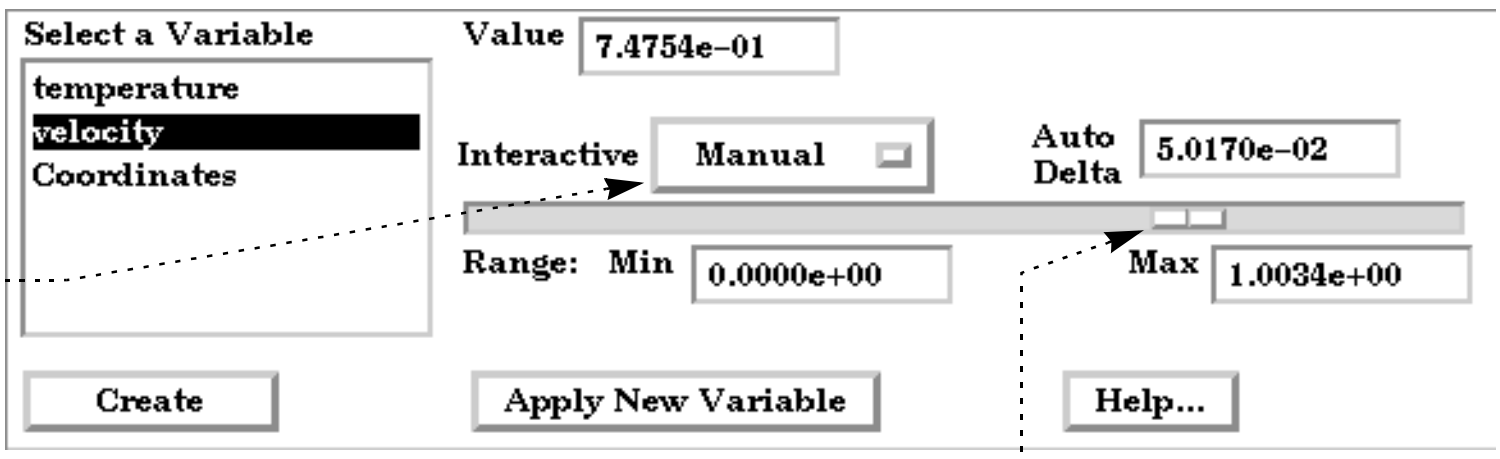
Basic Operation



Advanced Usage

Interactive Isosurfaces

You can have EnSight automatically generate and display isosurfaces as you adjust a slider with the mouse.

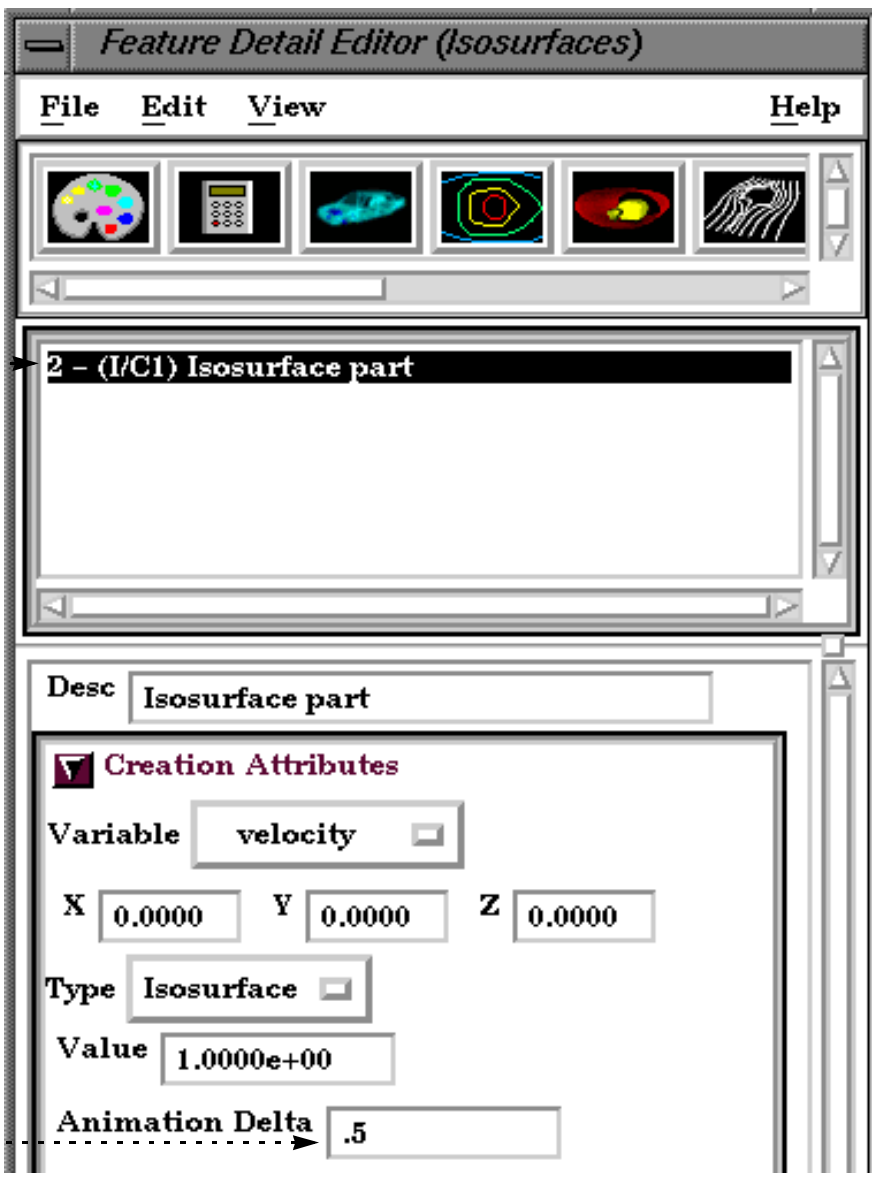


You can also set the Interactive mode to Auto and EnSight will automatically sweep from Range Min to Max with step size equal to Auto Delta.

Isosurface Animation

A range of isosurfaces can be automatically generated and viewed in a **flipbook**. Flipbooks provide on-screen animation of various dynamic events and (in the default setting) permit graphic manipulation (*e.g.* rotation or zoom) while the animation runs.

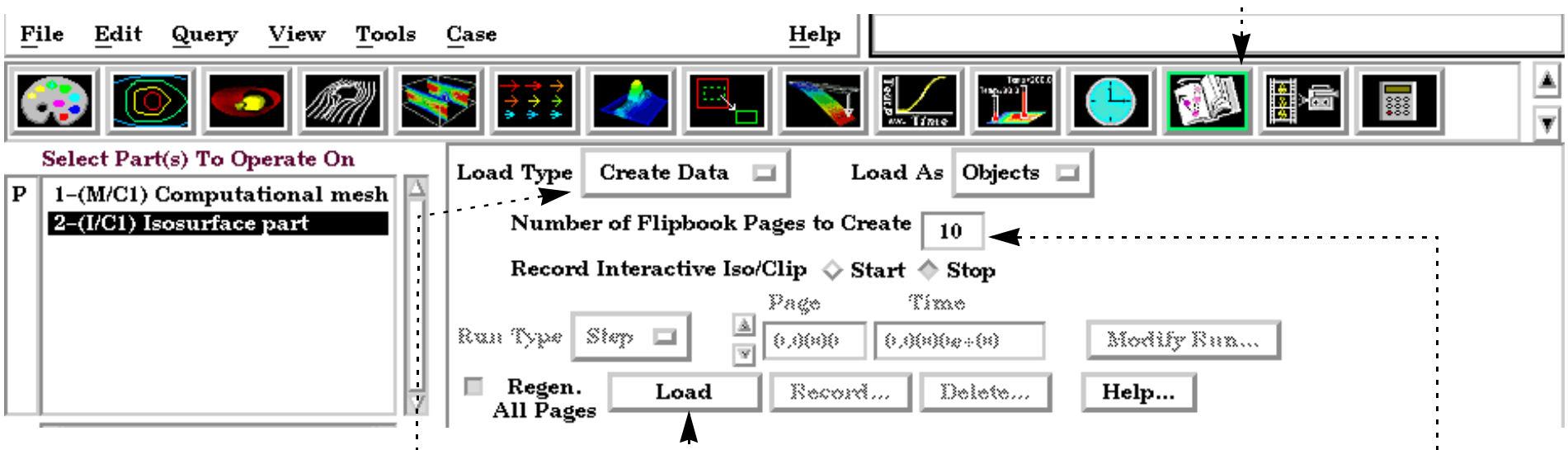
1. Open the Feature Detail Editor for isosurfaces (Edit > Part Detail Editors > Isosurfaces ...).



2. Select the isosurface part.

3. In the Creation Attributes section, set the Animation Delta to an appropriate value and hit return. For each page (frame) of the flipbook, this value will be added to the current value to yield the new isovalue.

4. Click the Flipbook icon.



5. Set the Load Type to Create Data.

6. Set the number of pages to an appropriate value.

7. Click Load.

8. When loading is complete, move the mouse cursor into the main graphics window to display the flipbook. The Run Type controls whether playback is automatic or controlled via the page step buttons.

EnSight can also automatically calculate a range of isosurfaces during **keyframe animation**.

Advanced Usage

Isovolume Creation

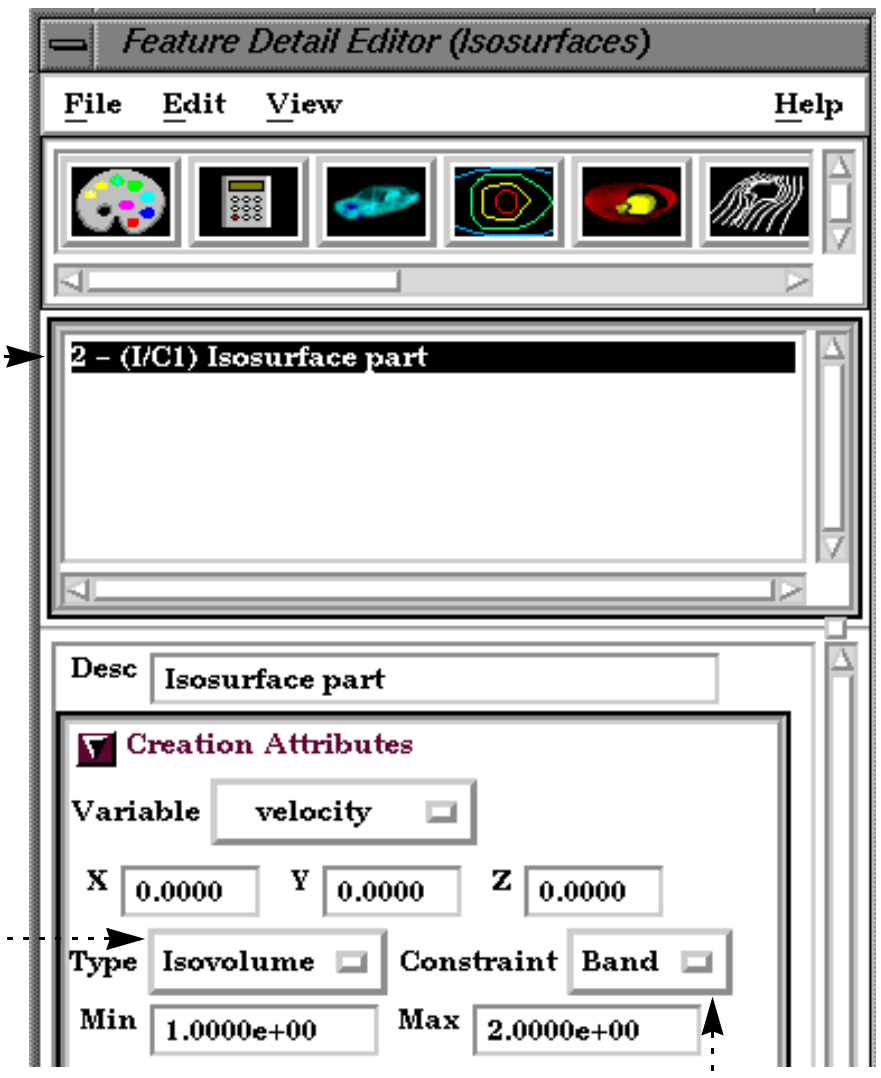
An isovolume is a volume whose constituents (e.g. nodes and elements) are constrained to a constant interval range in a scalar field. In EnSight, you can constrain the isovolume to ranges less than an interval minimum, greater than an interval maximum, or between the interval minimum and maximum.

1. **Open the Feature Detail Editor for isosurfaces (either: Edit > Part Detail Editors > Isosurfaces ... , or double click the Isosurface Feature Icon).**

2. **Select the isosurface part.**

3. **In the Creation Attributes section, set Type to Isovolume.**

4. **Set the Constraint to Band to constrain the isovolume within an appropriate Min and Max range of the scalar variable.**



Other Notes

Effective display of more than two nested isosurfaces is difficult. Set **transparency** on the outermost isosurface(s) to reveal the inner surfaces. To avoid confusion, don't try to display isosurfaces of more than one variable simultaneously, or multiple isosurfaces of the same variable colored by different variables.

See Also

How-To Create a Flipbook Animation, **How-To Create a Keyframe Animation**

User Manual: **Isosurface Create/Update**